



## DECLARATION

As a below named inventor, I declare that:

My residence, post office address and citizenship are as stated below next to my name; I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural inventors are named below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: **A PH SENSITIVE POTSSIU CHANNEL IN SPERMATOCYTES** the specification of which      is attached hereto or X was filed on **10/21/98** as Application No. **09/176,664** and was amended on                      (if applicable).

I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, Section 1.56. I claim foreign priority benefits under Title 35, United States Code, Section 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

## Prior Foreign Application(s)

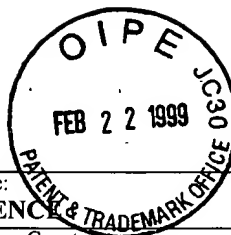
Country	Application No.	Date of Filing	Priority Claimed Under 35 USC 119

I hereby claim the benefit under Title 35, United States Code § 119(e) of any United States provisional application(s) listed below:

Application No.	Filing Date
60,063,138	10/22/97
60,076,172	02/27/98

I claim the benefit under Title 35, United States Code, Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, Section 1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

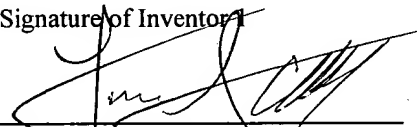
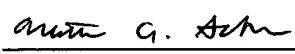
Application No.	Date of Filing	Status



Attorney Docket No.: 018512-000120

Full Name of Inventor 1:	Last Name: <b>SALKOFF</b>	First Name: <b>LAWRENCE</b>	Middle Name or Initial:	
Residence & Citizenship:	City: <b>Clayton</b>	State/Foreign Country: <b>Missouri</b>	Country of Citizenship: <b>USA</b>	
Post Office Address:	Post Office Address: <b>6327 Alamo Avenue</b>	City: <b>Clayton</b>	State/Country: <b>Missouri</b>	Postal Code: <b>63105</b>
Full Name of Inventor 2:	Last Name: <b>SCHREIBER</b>	First Name: <b>MATTHEW</b>	Middle Name or Initial:	
Residence & Citizenship:	City: <b>Clayton</b>	State/Foreign Country: <b>Missouri</b>	Country of Citizenship: <b>USA</b>	
Post Office Address:	Post Office Address: <b>7561 York Drive</b>	City: <b>Clayton</b>	State/Country: <b>Missouri</b>	Postal Code: <b>63105</b>
Full Name of Inventor 3:	Last Name: <b>SILVIA</b>	State/Foreign Country: <b>CHRIS</b>	Middle Name or Initial:	
Residence & Citizenship:	City: <b>Durham</b>	State/Foreign Country: <b>North Carolina</b>	Country of Citizenship: <b>USA</b>	
Post Office Address:	Post Office Address: <b>3105 Broomsedge Way</b>	City: <b>Durham</b>	State/Country: <b>North Carolina</b>	Postal Code: <b>27712</b>

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signature of Inventor 1  LAWRENCE SALKOFF	Signature of Inventor 2  MATTHEW SCHREIBER	Signature of Inventor  CHRIS SILVIA
Date <b>1-15-99</b>	Date <b>1-15-99</b>	

182570



## DECLARATION

As a below named inventor, I declare that:

My residence, post office address and citizenship are as stated below next to my name; I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural inventors are named below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: **A PH SENSITIVE POTSSIU CHANNEL IN SPERMATOCYTES** the specification of which        is attached hereto or X was filed on 10/21/98 as Application No. 09/176,664 and was amended on                                  (if applicable).

I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, Section 1.56. I claim foreign priority benefits under Title 35, United States Code, Section 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

### Prior Foreign Application(s)

Country	Application No.	Date of Filing	Priority Claimed Under 35 USC 119

I hereby claim the benefit under Title 35, United States Code § 119(e) of any United States provisional application(s) listed below:

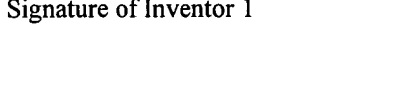
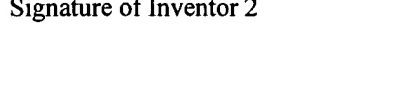
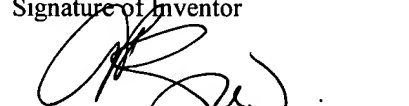
Application No.	Filing Date
60,063,138	10/22/97
60,076,172	02/27/98

I claim the benefit under Title 35, United States Code, Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, Section 1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

Application No.	Date of Filing	Status

Full Name of Inventor 1:	Last Name: <b>SALKOFF</b>	First Name: <b>LAWRENCE</b>	Middle Name or Initial:	
Residence & Citizenship:	City: <b>Clayton</b>	State/Foreign Country: <b>Missouri</b>	Country of Citizenship: <b>USA</b>	
Post Office Address:	Post Office Address: <b>6327 Alamo Avenue</b>	City: <b>Clayton</b>	State/Country: <b>Missouri</b>	Postal Code: <b>63105</b>
Full Name of Inventor 2:	Last Name: <b>SCHREIBER</b>	First Name: <b>MATTHEW</b>	Middle Name or Initial:	
Residence & Citizenship:	City: <b>Clayton</b>	State/Foreign Country: <b>Missouri</b>	Country of Citizenship: <b>USA</b>	
Post Office Address:	Post Office Address: <b>7561 York Drive</b>	City: <b>Clayton</b>	State/Country: <b>Missouri</b>	Postal Code: <b>63105</b>
Full Name of Inventor 3:	Last Name: <b>SILVIA</b>	State/Foreign Country: <b>CHRIS</b>	Middle Name or Initial:	
Residence & Citizenship:	City: <b>Durham</b>	State/Foreign Country: <b>North Carolina</b>	Country of Citizenship: <b>USA</b>	
Post Office Address:	Post Office Address: <b>3105 Broomsedge Way</b>	City: <b>Durham</b>	State/Country: <b>North Carolina</b>	Postal Code: <b>27712</b>

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signature of Inventor 1	Signature of Inventor 2	Signature of Inventor
		
<b>LAWRENCE SALKOFF</b>	<b>MATTHEW SCHREIBER</b>	<b>CHRIS SILVIA</b>
Date	Date	Date <b>Dec 15 1998</b>



Attorney Docket No. 018512-000120

### POWER OF ATTORNEY BY ASSIGNEE

The Washington University is the Assignee of the invention entitled: **PH SENSITIVE POTASSIUM CHANNEL IN SPERMATOCYTES**, the specification of which     is attached hereto or X was filed on October 21, 1998 as Application Serial No. 09/176,664.

Assignee hereby appoints the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

Annette S. Parent, Reg. No. 42,058  
Kenneth A. Weber, Reg. No. 31,677  
Eugenia Garrett-Wackowski, Reg. No. 37,330  
Jonathan Alan Quine, Reg. No. 41,261

Send Correspondence to:

Annette S. Parent  
TOWNSEND and TOWNSEND and CREW LLP  
Two Embarcadero Center, 8<sup>th</sup> Floor  
San Francisco, CA 94111-3834

Direct Telephone Calls to:

(Name, reg. no., tele. no.)

Annette S. Parent  
Reg. No.: 42,058  
(415) 576-0200

Date: 1/22/99

The Washington University

By: Andrew Neighbour  
(Signature)

Andrew Neighbour, Ph.D.  
Associate Vice Chancellor  
For Technology Management

182626



Attorney Docket No. 018512-000120

**POWER OF ATTORNEY BY ASSIGNEE**

ICAgen, Incorporated is the Assignee of the invention entitled: **PH SENSITIVE POTASSIUM CHANNEL IN SPERMATOCYTES**, the specification of which \_\_\_ is attached hereto or X was filed on October 21, 1998 as Application Serial No. 09/176,664.

Assignee hereby appoints the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

Annette S. Parent, Reg. No. 42,058  
Kenneth A. Weber, Reg. No. 31,677  
Eugenia Garrett-Wackowski, Reg. No. 37,330  
Jonathan Alan Quine, Reg. No. 41,261

Send Correspondence to:

Annette S. Parent  
TOWNSEND and TOWNSEND and CREW LLP  
Two Embarcadero Center, 8<sup>th</sup> Floor  
San Francisco, CA 94111-3834

Direct Telephone Calls to:  
(Name, reg. no., tele. no.)

Annette S. Parent  
Reg. No.: 42,058  
(415) 576-0200

ICAgen, Incorporated

Date: 12/16/99

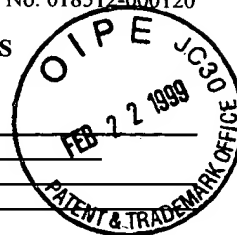
By:   
(Signature)

Name: ROBERT J JAKOBS

Title: ASSISTANT SECRETARY

182626

**VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS**  
(37 CFR 1.9(f) & 1.27(c)) - SMALL BUSINESS CONCERN



Applicant or Patentee: Salkoff et al.  
Application or Patent No.: 09/176,664  
Filed or Issued: October 21, 1998  
Title: PH SENSITIVE POTASSIUM CHANNEL IN SPERMATOCYTES

I hereby declare that I am:

☐  
☒

the owner of the small business concern identified below:  
an official of the small business concern empowered to act on behalf of the concern identified below:

Name of Small Business Concern: ICAgen, Incorporated  
Address of Small Business Concern: 4222 Emperor Boulevard, Suite 460, Durham, North Carolina 27703

I hereby declare that the above-identified small business concern qualifies as a small business concern as defined in 13 CFR 121.12, and reproduced in 37 CFR 1.9(d), for purposes of paying reduced fees to the United States Patent and Trademark Office, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby declare that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention, entitled **PH SENSITIVE POTASSIUM CHANNEL IN SPERMATOCYTES** by inventor(s) **Lawrence Salkoff, Matthew Schreiber and Chris Silvia** described in:

☐  
☒  
☐

the specification filed herewith.  
Application No. 09/176,664, filed 10/21/98.  
Patent No. \_\_\_\_\_, issued \_\_\_\_\_.

If the rights held by the above identified small business concern are not exclusive, each individual, concern or organization having rights in the invention is listed below\* and no rights to the invention are held by any person, other than the inventor, who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person made the invention, or by any concern that would not qualify as a small business concern under 37 CFR 1.9(d), or a nonprofit organization under 37 CFR 1.9(e).

\*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

Name \_\_\_\_\_  
Address \_\_\_\_\_  
☐ Individual ☐ Small Business Concern ☐ Nonprofit Organization

Name \_\_\_\_\_  
Address \_\_\_\_\_  
☐ Individual ☐ Small Business Concern ☐ Nonprofit Organization

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b)).

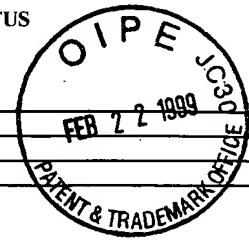
I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Name of Person Signing: PKay Wagoner  
Title of Person if Other than Owner: CEO  
Address of Person Signing: Suite 460 4222 Emperor Blvd Durham NC 27703

Signature [Signature] Date 12/29/98

**VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS  
(37 CFR 1.9(f) & 1.27(d)) - NONPROFIT ORGANIZATION**

Applicant or Patentee: Salkoff et al.  
 Application or Patent No.: 09/176,664  
 Filed or Issued: October 21, 1998  
 Title: A PH SENSITIVE POTASSIUM CHANNEL IN SPERMATOCYTES



I hereby declare that I am an official empowered to act on behalf of the nonprofit organization identified below:

Name of Nonprofit Organization: The Washington University  
 Address of Nonprofit Organization: One Brookings Drive  
St. Louis, Missouri 63130

Type of Nonprofit Organization:

- ☐ University or other institution of higher education.  
☐ Tax exempt under Internal Revenue Service Code [26 USC 501(a) and 501(c)(3)].  
☐ Nonprofit scientific or educational under statute of state or the United States of America  
 (Name of State \_\_\_\_\_).  
☐ Would qualify as tax exempt under Internal Revenue Service Code [26 USC 501(a) and 501(c)(3) if located in the United States of America.  
☐ Would qualify as nonprofit scientific or educational under statute of state of the United States of America if located in the United States of America  
 (Name of State \_\_\_\_\_)  
 (Citation of statute \_\_\_\_\_).

I hereby declare that the nonprofit organization identified above qualifies as a nonprofit organization as defined in 37 CFR 1.9(e) for purposes of paying reduced fees to the United States Patent and Trademark Office regarding the invention, entitled **A PH SENSITIVE POTASSIUM CHANNEL IN SPERMATOCYTES** by inventor(s) described in:

- ☐ the specification filed herewith;  
☒ Application No. 09/176,664, filed October 21, 1998;  
☐ Patent No. \_\_\_\_\_, issued \_\_\_\_\_.

I hereby declare that rights under contract or law have been conveyed to and remain with the nonprofit organization regarding the above identified invention.

If the rights held by the nonprofit organization are not exclusive, each individual, concern or organization having rights in the invention is listed below\* and no rights to the invention are held by any person, other than the inventor, who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person made the invention, or by any concern that would not qualify as a small business concern under 37 CFR 1.9(d), or a nonprofit organization under 37 CFR 1.9(e).

\*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

☐ Individual ☐ Small Business Concern ☐ Nonprofit Organization

Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

☐ Individual ☐ Small Business Concern ☐ Nonprofit Organization

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Name of Person Signing: \_\_\_\_\_  
 Title in Organization of Person Signing: \_\_\_\_\_  
 Address of Person Signing: \_\_\_\_\_

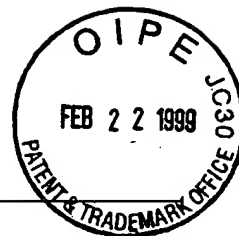
**Andrew Neighbour, Ph.D.**  
**Associate Vice Chancellor**  
**For Technology Management**

Signature: *Andrew Neighbour*

Date: 12/31/98



CERTIFICATE UNDER 37 C.F.R. § 3.73(b)



Applicant: Salkoff et al.

Application No.: 09/176,664

Filed: 10/21/98

For: PH SENSITIVE POTASSIUM CHANNEL IN SPERMATOCYTES

The Washington University, a university

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

certifies that it is assignee of the patent application identified above by virtue of either:

A. An assignment from the inventor(s) of the patent application identified above. The assignment was recorded in the Patent and Trademark Office at Reel \_\_\_\_\_, Frame(s) \_\_\_\_\_, or for which a copy thereof is attached.

OR

B. A chain of title from the inventor(s), of the patent application identified above, to the current assignee as shown below:

1. From: \_\_\_\_\_ To: \_\_\_\_\_  
The document was recorded in the Patent and Trademark Office at Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

2. From: \_\_\_\_\_ To: \_\_\_\_\_  
The document was recorded in the Patent and Trademark Office at Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

3. From: \_\_\_\_\_ To: \_\_\_\_\_  
The document was recorded in the Patent and Trademark Office at Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet.

☐ Copies of assignments or other documents in the chain of title are attached.

The undersigned (whose title is supplied below) is empowered to act on behalf of the assignee.

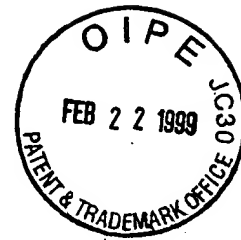
I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further, that these statements are made with the knowledge that willful false statements, and the like so made, are punishable by fine or imprisonment, or both, under Section 1001, Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date : 1/22/99  
Name : \_\_\_\_\_  
Title : \_\_\_\_\_  
Signature: Andrew Neighbour

182613

Andrew Neighbour, Ph.D.  
Associate Vice Chancellor  
For Technology Management

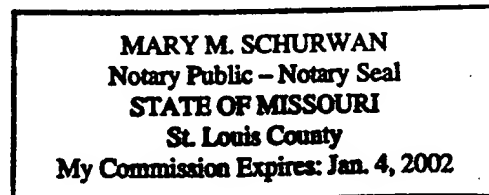
STATE OF MISSOURI     )  
                                      )  
COUNTY OF ST. LOUIS    )



On this 15<sup>th</sup> day of January, 1998<sup>9</sup>, before me, a Notary Public, within and for the State of Missouri personally appeared **Lawrence Salkoff**, to me known to be one of the persons described in and who executed the foregoing assignment and acknowledged that he executed the same as his free act and deed.

In witness whereof, I have hereunto set my hand and affixed my official seal, the day and year in this certificate first above written.

Mary M Schurwan  
Notary Public

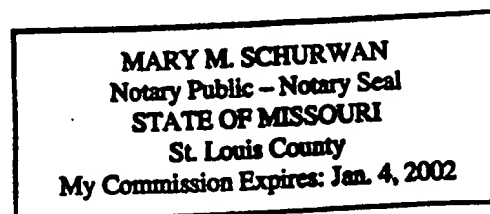


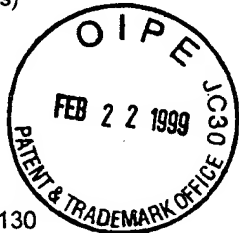
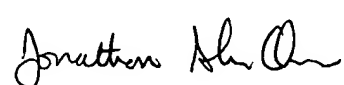
STATE OF MISSOURI     )  
                                      )  
COUNTY OF ST. LOUIS    )

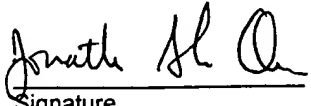
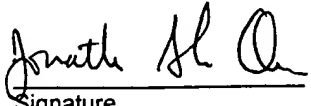
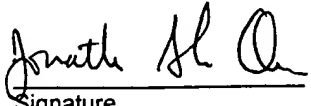
On this 15<sup>th</sup> day of January, 1998<sup>9</sup>, before me, a Notary Public, within and for the State of Missouri personally appeared **Matthew Schreiber**, to me known to be one of the persons described in and who executed the foregoing assignment and acknowledged that he executed the same as his free act and deed.

In witness whereof, I have hereunto set my hand and affixed my official seal, the day and year in this certificate first above written.

Mary M Schurwan  
Notary Public



FORM PTO-1595 (Rev. 6-93)		Recordation Form Cover Sheet (Patents Only)		U.S. Department of Commerce Patent and Trademark Office	
To the Honorable Asst. Commissioner for Patents. Please record the attached original documents or copy thereof					
1. Name of conveying party(ies):  Lawrence Salkoff and Matthew Schreiber  Additional name(s) of conveying parties attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No.		2. Name and address of receiving party(ies)  Name: The Washington University  Internal Address:  Street Address: One Brookings Drive  City: St. Louis State: Missouri ZIP: 63130  Additional names and addresses attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
3. Nature of conveyance:  <input checked="" type="checkbox"/> Assignment <input type="checkbox"/> Merger  <input type="checkbox"/> Security Agreement <input type="checkbox"/> Change of Name  <input type="checkbox"/> Other:  Execution Date: 1/15/99 and 1/15/99		<b>COPY</b>			
4. Application Number(s) or Patent Numbers.  If this document is being filed together with a new application, the execution date of the application is:  A. Patent Application No(s): 09/176,664 B. Patent No(s):  Additional numbers attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
5. Name and address of party to whom correspondence concerning document should be mailed:  Name: Jonathan Alan Quine TOWNSEND AND TOWNSEND AND CREW LLP Two Embarcadero Center, 8 <sup>th</sup> Floor San Francisco, California 94111-3834 (415) 576-0200		6. Total number of applications and patents involved 1  7. Total fee (37 CFR 3.41): -----\$40.00  <input type="checkbox"/> Enclosed <input checked="" type="checkbox"/> Charge Fees to Deposit Account  <input checked="" type="checkbox"/> Charge any additional fees associated with this paper or during the pendency of this application, or credit any overpayment, to deposit account.  8. Deposit account number: 20-1430			
DO NOT USE THIS SPACE					
9. Statement and signature.  <i>To the best of my knowledge and belief, the foregoing is true and correct and any attached copy is a true of copy of the original document.</i>  <div style="display: flex; justify-content: space-between;"><div>Jonathan Alan Quine Name of Person Signing</div><div> Signature</div><div>2-10-99 Date</div></div> Atty Reg. No. 41,261 Total number of pages including cover sheet, attachments and document 4					
10. Change Correspondence Address to that of Part 5? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					
OMB No. 0651-0011 (exp. 4/94)					
Do not detach this portion  Mail documents to be recorded with required cover to:  Asst. Commissioner for Patents Box: Assignments Washington, D.C. 20231					

FORM PTO-1595 (Rev. 6-93)		Recordation Form Cover Sheet (Patents Only)		U.S. Department of Commerce Patent and Trademark Office				
To the Honorable Asst. Commissioner for Patents. Please record the attached original documents or copy thereof								
1. Name of conveying party(ies):  Chris Silvia  Additional name(s) of conveying parties attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No.		2. Name and address of receiving party(ies)  Name: ICAGEN, Incorporated  Internal Address:  Street Address: 4222 Emperor Boulevard, Ste. 460r  City: Durham State: North Carolina ZIP: 27703  Additional names and addresses attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No						
3. Nature of conveyance:  <input checked="" type="checkbox"/> Assignment <input type="checkbox"/> Merger  <input type="checkbox"/> Security Agreement <input type="checkbox"/> Change of Name  <input type="checkbox"/> Other:  Execution Date: 12/15/98		COPY						
4. Application Number(s) or Patent Numbers.  If this document is being filed together with a new application, the execution date of the application is:  A. Patent Application No(s): 09/176,664  B. Patent No(s):  Additional numbers attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No								
5. Name and address of party to whom correspondence concerning document should be mailed:  Name: Jonathan Alan Quine TOWNSEND AND TOWNSEND AND CREW LLP Two Embarcadero Center, 8 <sup>th</sup> Floor San Francisco, California 94111-3834 (415) 576-0200		6. Total number of applications and patents involved 1  7. Total fee (37 CFR 3.41): -----\$40.00  <input type="checkbox"/> Enclosed <input checked="" type="checkbox"/> Charge Fees to Deposit Account  <input checked="" type="checkbox"/> Charge any additional fees associated with this paper or during the pendency of this application, or credit any overpayment, to deposit account.  8. Deposit account number: 20-1430						
DO NOT USE THIS SPACE								
9. Statement and signature.  <i>To the best of my knowledge and belief, the foregoing is true and correct and any attached copy is a true of copy of the original document.</i>  <table border="0" style="width: 100%;"><tr><td style="width: 30%;"><u>Jonathan Alan Quine</u> Name of Person Signing</td><td style="width: 30%; text-align: center;"> Signature</td><td style="width: 30%; text-align: center;"><u>2-10-99</u> Date</td></tr></table> Atty Reg. No. 41,261      Total number of pages including cover sheet, attachments and document 3						<u>Jonathan Alan Quine</u> Name of Person Signing	 Signature	<u>2-10-99</u> Date
<u>Jonathan Alan Quine</u> Name of Person Signing	 Signature	<u>2-10-99</u> Date						
10. Change Correspondence Address to that of Part 5? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No								
OMB No. 0651-0011 (exp. 4/94)								
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COPY



Attorney Docket No. 018912-000

ASSIGNMENT OF PATENT APPLICATION

JOINT

WHEREAS, **Lawrence Salkoff** of **6327 Alamo Avenue, Clayton, Missouri 63105** and **Matthew Schreiber** of **7561 York Drive., Apt. 2N, Clayton, Missouri 63105**, hereinafter referred to as "Assignors," are the inventors of the invention described and set forth in the below identified application for United States Letters Patent:

Title of the Invention: **A pH SENSITIVE POTASSIUM CHANNEL  
IN SPERMATOCYTES**

Date(s) of execution of Declaration: 1-15-99 (both)

Filing date: **October 21, 1998**; Application No.: **09/176,664**; and

WHEREAS, **The Washington University a Missouri** corporation, located at **One Brookings Drive, St. Louis, Missouri 63130**, hereinafter referred to as "Assignee," is desirous of acquiring an interest in the invention and application and in any Letters Patent and Registrations which may be granted on the same;

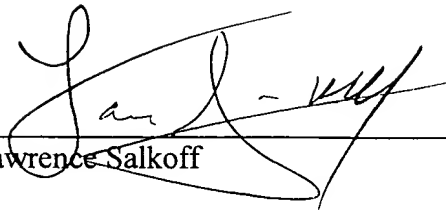
For good and valuable consideration, receipt of which is hereby acknowledged by Assignors, Assignors have assigned, and by these presents do assign to Assignee all right, title and interest in and to the invention and application and to all foreign counterparts (including patent, utility model and industrial designs), and in and to any Letters Patent and Registrations which may hereafter be granted on the same in the United States and all countries throughout the world, and to claim the priority from the application as provided by the Paris Convention. The right, title and interest is to be held and enjoyed by Assignee and Assignee's successors and assigns as fully and exclusively as it would have been held and enjoyed by Assignors had this assignment not been made, for the full term of any Letters Patent and Registrations which may be granted thereon, or of any division, renewal, continuation in whole or in part, substitution, conversion, reissue, prolongation or extension thereof.

Assignors further agree that they will, without charge to Assignee, but at Assignee's expense, (a) cooperate with Assignee in the prosecution of U.S. Patent applications and foreign counterparts on the invention and any improvements, (b) execute, verify, acknowledge and deliver all such further papers, including patent applications and instruments of transfer and (c) perform such other acts as Assignee lawfully may request to obtain or maintain Letters Patent and Registrations for the invention and improvements in any and all countries, and to vest title thereto in Assignee, or Assignee's successors and assigns.

IN TESTIMONY WHEREOF, Assignors have signed their names on the dates indicated.

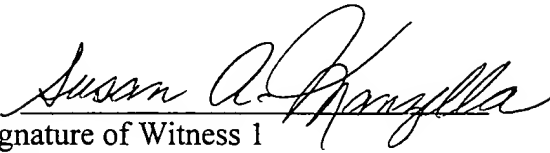
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Date: 1-15-99

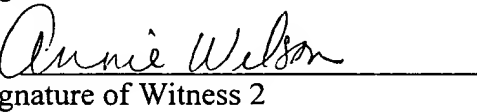
  
Lawrence Salkoff

SIGNATURE WITNESSED BY:

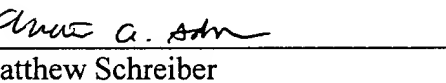
(1) Date: 1/15/99

  
Signature of Witness 1

(2) Date: 1/15/99

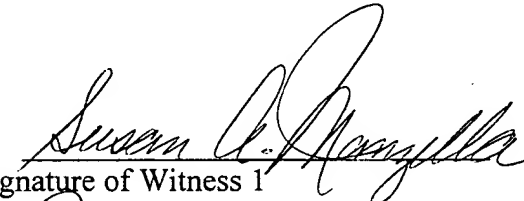
  
Signature of Witness 2

Date: 1-15-99

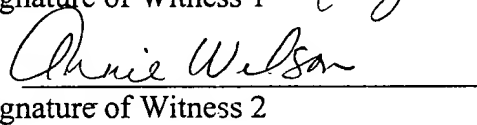
  
Matthew Schreiber

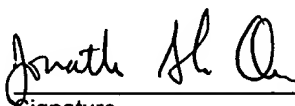
SIGNATURE WITNESSED BY:

(1) Date: 1/15/99

  
Signature of Witness 1

(2) Date: 1/15/99

  
Signature of Witness 2

FGRM PTO-1595 (Rev. 6-93)	Recordation Form Cover Sheet (Patents Only)	U.S. Department of Commerce Patent and Trademark Office
To the Honorable Asst. Commissioner for Patents. Please record the attached original documents or copy thereof		
1. Name of conveying party(ies):  Chris Silvia  Additional name(s) of conveying parties attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No.	2. Name and address of receiving party(ies)  Name: ICAgen, Incorporated  Internal Address:  Street Address: 4222 Emperor Boulevard, Ste. 400  City: Durham State: North Carolina ZIP: 27703  Additional names and addresses attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3. Nature of conveyance:  <input checked="" type="checkbox"/> Assignment <input type="checkbox"/> Merger  <input type="checkbox"/> Security Agreement <input type="checkbox"/> Change of Name  <input type="checkbox"/> Other:  Execution Date: 12/15/98		
4. Application Number(s) or Patent Numbers.  If this document is being filed together with a new application, the execution date of the application is:  <div style="display: flex; justify-content: space-between;"> <div>A. Patent Application No(s): 09/176,664</div> <div>B. Patent No(s):</div> </div> <div style="text-align: center; margin-top: 10px;">         Additional numbers attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No       </div>		
5. Name and address of party to whom correspondence concerning document should be mailed:  Name: Jonathan Alan Quine TOWNSEND AND TOWNSEND AND CREW LLP Two Embarcadero Center, 8 <sup>th</sup> Floor San Francisco, California 94111-3834 (415) 576-0200	6. Total number of applications and patents involved 1  7. Total fee (37 CFR 3.41): -----\$40.00  <input type="checkbox"/> Enclosed <input checked="" type="checkbox"/> Charge Fees to Deposit Account  <input checked="" type="checkbox"/> Charge any additional fees associated with this paper or during the pendency of this application, or credit any overpayment, to deposit account.  8. Deposit account number: 20-1430	
<b>DO NOT USE THIS SPACE</b>		
9. Statement and signature.  <p style="text-align: center;"><i>To the best of my knowledge and belief, the foregoing is true and correct and any attached copy is a true of copy of the original document.</i></p> <div style="display: flex; justify-content: space-between; align-items: flex-end; margin-top: 20px;"> <div style="text-align: center;"> <u>Jonathan Alan Quine</u>            Name of Person Signing         </div> <div style="text-align: center;">             Signature         </div> <div style="text-align: center;"> <u>2-10-99</u>            Date         </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div>Atty Reg. No. 41,261</div> <div>Total number of pages including cover sheet, attachments and document 3</div> </div>		
10. Change Correspondence Address to that of Part 5? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
OMB N . 0651-0011 (exp. 4/94)		
Do not detach this portion		
Mail documents to be recorded with required cover to:  Asst. Commissioner for Patents Box: Assignments Washington, D.C. 20231		

ASSIGNMENT OF PATENT APPLICATION

SOLE

WHEREAS, **Chris Silvia of 3105 Broomsedge Way, Durham, North Carolina 27712**, hereinafter referred to as "Assignor," are the inventor of the invention described and set forth in the below identified application for United States Letters Patent:

Title of the Invention: **A pH SENSITIVE POTASSIUM CHANNEL  
IN SPERMATOCYTES**

Date(s) of execution of Declaration: Dec 15 1998

Filing date: **October 21, 1998**; Application No.: **09/176,664**; and

WHEREAS, **ICAgen, Incorporated a Delaware corporation, located at 4222 Emperor Boulevard, Ste. 460, Durham, North Carolina 27703**, hereinafter referred to as "Assignee," is desirous of acquiring an interest in the invention and application and in any Letters Patent and Registrations which may be granted on the same;


For good and valuable consideration, receipt of which is hereby acknowledged by Assignors, Assignors have assigned, and by these presents do assign to Assignee all right, title and interest in and to the invention and application and to all foreign counterparts (including patent, utility model and industrial designs), and in and to any Letters Patent and Registrations which may hereafter be granted on the same in the United States and all countries throughout the world, and to claim the priority from the application as provided by the Paris Convention. The right, title and interest is to be held and enjoyed by Assignee and Assignee's successors and assigns as fully and exclusively as it would have been held and enjoyed by Assignors had this assignment not been made, for the full term of any Letters Patent and Registrations which may be granted thereon, or of any division, renewal, continuation in whole or in part, substitution, conversion, reissue, prolongation or extension thereof.

Assignors further agree that they will, without charge to Assignee, but at Assignee's expense, (a) cooperate with Assignee in the prosecution of U.S. Patent applications and foreign counterparts on the invention and any improvements, (b) execute, verify, acknowledge and deliver all such further papers, including patent applications and instruments of transfer and (c) perform such other acts as Assignee lawfully may request to obtain or maintain Letters Patent and Registrations for the invention and improvements in any and all countries, and to vest title thereto in Assignee, or Assignee's successors and assigns.



IN TESTIMONY WHEREOF, Assignors have signed their names on the dates indicated.

Date: 12/15/98

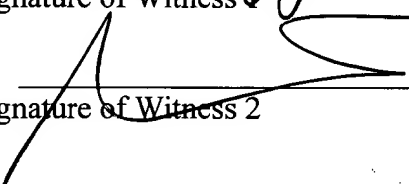
  
Chris Silvia

SIGNATURE WITNESSED BY:

(1) Date: 12/16/98

  
Signature of Witness 1

(2) Date: 12/16/98

  
Signature of Witness 2

182586

*Signed and witnessed in my presence  
this 16<sup>th</sup> day of December, 1998.*

*Barbara C. Brown  
Notary Public  
My commission expires 1-28-01*

